VC- D – 30/09/2015 – F. Y. B. F. M. – Sem I – Business Mathematics – 2 ½ Hours – 75 – 180

N.B.: 1. All questions are compulsory.

2. All questions carry equal marks.

3. Figures to the right indicate maximum marks allotted to the sub-questions.

4. Use of simple calculator is allowed.

Q.1]

a) Attempt any eight multiple choice questions: [08]

i) If 0.75: x :: 5 : 8, then x is equal to:

a) 1.12 b) 1.2 c) 1.25 d) 1.3

ii) In _____ years Rs.8000 will amount to Rs.8840 at 3.5% p.a. simple interest.

a) 2 b) 3 c) 4 d) None of these.

iii) The compound interest on Rs.2000 at 12% p.a. is maximum when the interest is compounded ______.

a) Quarterly b) Half-yearly c) Yearly d) data is not sufficient.

iv) The present value is always _______ the future value.

a) More than b) less than c) equal to d) none of these

v) An annuity in which all the payments are equal is called

a) Equitable annuity. b) Egalitarian annuity. c) Annuity due. d) Uniform annuity.

vi) Every identity matrix is

a) Square Matrix b) Diagonal Matrix c) Scalar Matrix d) All of these

vii) When two rows or columns of a determinant are identical its value is _____.

a) Negative b) Positive c) Zero d) None of these

viii) A man invests Rs. 10,400 in buying a share of face value Rs.100 at Rs. 80 per share.

Then the number of shares he has is ______.

a) 104 b) 116 c) 130 d) None of these

ix) An investor sold his 121.5 units of a certain mutual fund when its NAV was Rs. 31.3.

Then the amount received by him Rs. ______.

a) 3751 b) 3802.95 c) 3782 d) None of these

x) The simple interest at 8% for 4years was Rs. 640, then the principal was

a) 6400 b) 20000 c) 12000 d) 2000

b) State the following statement are true or false:(any seven) [07]

i) Increase in frequency of compounding within a year with decrease in maturity amount.

ii) The simple interest on principal P for 1 year at r% per year is $p \times \frac{r}{100}$.

iii) a: b: c is called continued ratio of three numbers.

iv) The relation between two quantities of the similar kind is called a ratio.

v) Net price = Reduced price – cash discount.

vi) Market value is also called as nominal value.

vii) The NAV depends on the current assets of the fund and its liabilities.

viii)In S.I.P. scheme ,the investor decides to invest a fixed pre-decided sum every month.

ix) The value of a determinant remain unchanged if the rows and columns are interchanged.

x) In square matrix number of rows and columns are unequal.

Q.2]

a) The ratio of the income of two friends A and B was in the ratio 5 : 4. If the sum of their income is Rs.2,70,000, find their individual income. [07]

b) A plot of land was sold for Rs.1,20,000 through a estate agent who charge his brokerage 2% from the seller and 1.5% from the buyer. Find the amount which the (i). seller go.

(ii). buyer paid and (c). broker got.

[08]

OR

p) The cost price of the mobile hand set to a company is Rs.5.000 Its marked price is Rs.8,0000, to which 15% discount is offered. If the cash discount is 10%, Find the profit as well as the percentage profit of the company for each hand set sold against cash payment.

[07]

q) The total income per day of shopkeepers Popatlal, Banvarilal and Hasmukhbhai is 900 and their savings per day from this income are 20%, 40% and 30% respectively their respective expenditure in the shops are in the ratio 8 : 9 : 14, find their individual income from the shops.

[08]

Q.3]

a) A sum was borrowed at 7% interest to be compounded annually. It was repaid in 8 equal installments of Rs.7000 each, paid at the end of each year. Find the sum he borrowed.

[08]

b)Vishal has Rs.4000 he lent a part of it at 8% and the rest at 5%. If the total annual interest received by him was Rs.290, Find the money he lent at 8%and 5%. [07]

OR

p) A person brought Rs.75,000 at 12% p.a. if he wishes to return the sum within a one year. Find his EMI using (i). interest on reducing balance, (ii). Flat interest rate. [08]

q) Madhura brought the cash certificate of a company for Rs. 5000, having the maturity value of Rs. 10000 at the end of 10 years. Find the rate of interest offered by the company.

if the compound interest is calculated annually. ($\sqrt[10]{2} = 1.072$) [07]

Q.4]

a) Solve the following equations using Cramer's Rule: [08]
$x + y + z - 7 = 0,\ x + 2y + 3z - 16 = 0, x + 3y + 4z - 22 = 0.$

b) An investor loss Rs.20080 in one day by buying the shares of a company at a rate of Rs.2500 and selling at the rate of Rs.2000. If the brokerage was Rs.0.1% on sale, find the number of shares traded by him. [07]

OR

p) The market price of shares of ABC Company. was Rs.415. the share was split so that, its face value changed from Rs.100 to Rs.5. if the market price of the shares after the split is Rs.25. Find the gain of an investor having 30 shares, after the split. [08]

q) The investor have joined the S.I.P. scheme, investing Rs.5000 per month for 4 months with NAV's Rs.35, 46, 39, 41 respectively, the entry load being 2%. Find the average unit cost by using (a). the rupee cost average method, (b). The arithmetic mean of price. [07]

Q.5] Attempt any three short notes: [15]

i) Classification of annuity.

ii) Properties of determinant.

iii) Triangular matrices.

iv) SIP scheme

v) tread discount and cash discount in detail.

OR

a) Explain the types of shares in detail. [08]

b) What is EMI? Explains two different method of calculation. [07]

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